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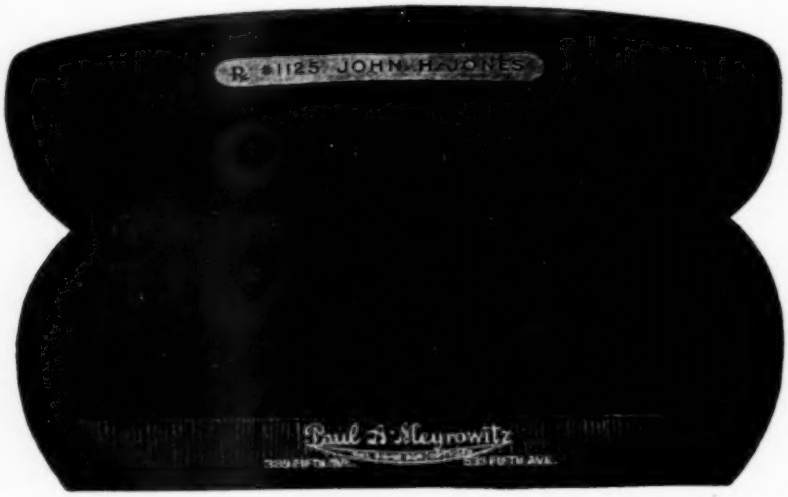

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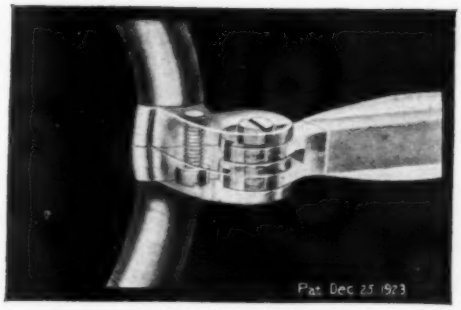

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Say: I saw it in the American Journal of Optometry

AMERICAN JOURNAL OF OPTOMETRY
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ON NERVE ENERGY

F. McFadden, Opt. D., F.A.A.O.
Athol, Mass.

"There are more things in Heaven and Earth, Horatio, than are dreamed of in your philosophy."—Shakespeare.

It is often refreshing to pause in our rapidly advancing field of Optometry and ask of ourselves the question: Exactly of what does Optometry consist, anyhow? Someone will say that it is a drugless method of procedure, others will turn to a dictionary or encyclopedia for a term which perhaps may have loosely defined the subject a generation or more ago. But exactly what constitutes the *present* science? And what will be its ingredients five years hence—which is really tomorrow, for that time will shortly be upon us.

Not so long ago its definition read much like that for "clear pudding," where you took two pints of water, washed them thoroughly on both sides, strained the first one through a cane seated chair, set it out to dry, while preparing the other by beating in a blue bowl having a red picture. Pour one over the other and eat while damp.

The ingredients today consist of a large number of very essential materials which need not here be enumerated. Suffice it to say that the mathematics of lenses and of the globe which enables us to compute and to deliver a perfect retinal image are essential but by no means will be considered a *sine qua non* henceforth.

Methods too long to relate in this brief article have shown that nerve energy is both uni-directional and by impulses. Alternating and direct current will not "flow" on a nerve trunk. More than all this, only rather definitely defined rates of impulse will be transmitted over certain nerves. Experimental work appears to show that some types of nerves will transmit when the impulses are of the order of about forty per second, others of the order of perhaps ten per second. It seems fairly well established that the optic nerve transmits cerebrally in the order of ten to sixteen per second, but it is highly probable that there are other conductions along this cable of which we yet can scarcely conceive.

Fournier, in his experiments connected with sundry pictures by radio, has found by ingenious experiments in connection with tele-vision that "every luminous emission of sufficient intensity which lasts for 1/250,000 of a second is perfectly registered on the retina, the impression of which persists for 1/10 of a second. This brings out clearly the curious property of the eye, the 'persistence of vision,' by which the sight of an image is preserved for a period of 25,000 times longer than the duration of the impression." In free translation this means that a single impulse of light which is of 1/250,000 of a second will impress itself upon the retina sufficiently to permit of observation, but that the rate of changes of these luminous impulses must be slowed down 25,000 times, or to about 1/10 of a second in order that successive messages may travel over the nerve to the brain and cause perception.

We must inquire into the manner of transmission of the picture, the conduction of the nervous impulse, and the localae of reception. There are some purely mechanical elements in ocular control, notably the movements of the globes. Without doubt, there are also chemical reactions which apparently come about in the process of transference of luminous energy into that form we are in the habit of describing as nerve energy. All energy is identical, however, except for the

fact that we apply different terms to it in a partial appreciation of the manner of its action. We consider light, heat and electric energy in three different ways, but they are alike only in their relative vibrational frequencies. Energy which is conceded as flowing in a wire is said to be electrical, while the same energy which resides in iron and steel, or which can be caused in a field of electric wires we call magnetism; but this electro-magnetic energy is identical with that which passes through nerve fibres.

Currents were once computed as "direct," conceived to travel constantly in one or other direction. "Alternating" current was a slightly later conception, in which the element of "frequency" of alternations was an important factor. From this has been born methods of splitting or filtering out the alternations so that one-half the impulses would be caused to travel in one direction, the other side being either suppressed, or caused to ride in the other direction. In either case the electrical impulses now under consideration will be uni-directional.

Only with the advent of the conditions by which radio transmission and reception of energy make possible are we able to form a proper conception of those conditions under which the conduction of the nervous impulse could take place. The crystal, the decoherer, and later the Fleming valves, now known as radio tubes, enable us to sift out the positive from the negative currents in any frequencies.

The alternations of direction, or frequencies, of commercial power current is usually of the order of 60 to 120 per second, but radio frequencies may run from a few thousands up into many millions per second. In that portion of the spectrum covered by the heat rays these cycles range roughly from 100 to 300 billions, while light to which the retina is sensitive is encompassed by cycles having frequencies between 400 and 700 billions. Chemical energy, whereby the camera "sees" by means of its chemically activated plate, runs from 700 billions up into the trillions. Radium and X-ray cause such vibrations, and no man knows what may still lie beyond.

Experimental work now under way has arrived at such a stage that we are positively assured of the transmission of radio energy, or of radio frequencies, in such way that the transmission of pictures alongside of speech will very soon be possible. This investigation has been very closely coupled with physiological optics together with investigation of the manner and rate of impulses of nerve conduction.

It is conceivable, if indeed not highly probable, that some of the retinal elements such as the ganglionic layer, and perhaps one or both the granular layers, have the power of segregating the alternating impulses in the manner of the crystal or the detector tube, as well as enormously slowing down the direct impulse action to a frequency which is transmissible over optic fibres in a manner not unlike the transposition of radio frequencies into those which may travel over the auditory nerve.

Lucas has shown that an electric impulse applied to a nerve will be transmitted by it only under certain conditions. A vibrator is used in such a manner as to "chop" the current, and various devices are employed for timing the intervals between shocks as well as the duration of each excitation. After shock there is a refractory period of apparently definite duration, and an impulse set up earlier than .007 second after the first will fail. Conduction is impossible in from 0. to .003 second after a previous impulse, is impaired after .003 to .015 second, and is supernormal from .015 to 0.1 second. Lucas goes on to say that "if there is a region of decrement such that a normal impulse just cannot pass, then impulses of moderate frequency may pass it successfully, while impulses of a high frequency may not only fail to pass it but may by their frequency prevent any other impulses finding their way through." A series of impulses which are properly timed (of correct frequency) will be conducted successfully, while a single impulse will fail, or an improper frequency will also fail.

Quoting further: "The failure to reach a muscle will depend upon the frequency of the impulse, the rate of recovery, and the degree of decrement which each impulse must sustain on its journey to the muscle. An increase in the strength of the stimulus may also lead to inhibition because it will

increase the frequency of the impulses set up. Now in the case of reflex inhibition there are several instances where an increase of strength or of frequency of stimulation converts an excitory stimulus to an inhibitory." Both Tiedermann and Veszi have shown that inhibition may be produced by the simultaneous stimulation of two roots of the cord when the stimulation of either root alone would have produced contraction. As an instance of reciprocal innervation, a stimulus applied to an afferent nerve X (see figure 1) produces a contraction of the muscle A and a simultaneous inhibition of tone of muscle B, and that stimuli applied to another nerve Y has the opposite effect causing contraction in B and inhibition in A. Let us suppose that in the nerves X and Y recovery takes place at such a rate that 100 impulses can be conducted in 1 second. X is in communication with muscle A by two relays, a and b. Suppose tract a to have a longer refractory period so that every other or alternate impulse from X arrives at a time when a cannot conduct at all. The result will be that only 50 impulses a second will pass into b. Now, nerve Y has a branch passing to b without intervention of tract a; consequently Y will send 100 impulses to b, whereas X sends only 50. The tract b recovers at such a rate that if only 50 impulses reach it per second each impulse will arrive in the phase of supernormal recovery, become large enough to pass the junction X and reach muscle A. If, on the other hand, the impulses occur at a frequency of 100 per second, each will fall in the phase of subnormal recovery, and none of them will be strong enough to pass junction X3. The stimuli at X will give a contraction in A while the stimuli from Y will have no effect. (Lucas.)

The motor muscles of the eyes have a number of combinations in which the aforesaid conditions are exactly paralleled. The co-ordinate rotation of the eyeballs from side to side while fixing at remotum is an instance, while the act of convergence added to a like rotation in reading, or watching mechanical movements in industrial work add immeasurably to the complication.

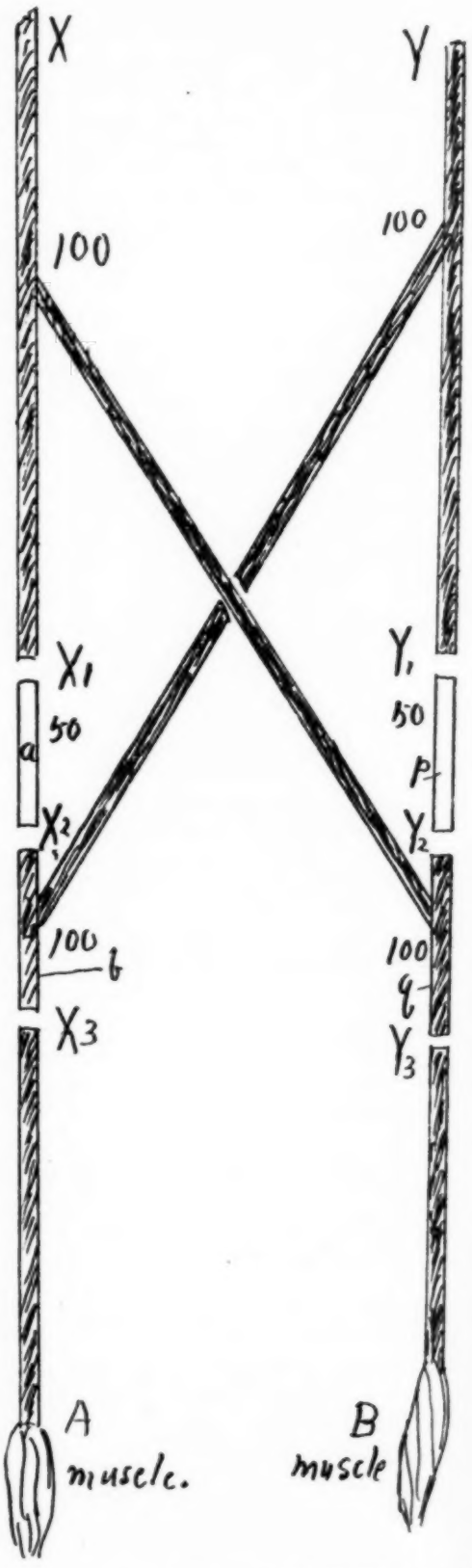

Figure One, from the "Conduction of the Nervous Impulse," by Lucas. Published by Longmans Green Co., 4th Ave. and 30th St., New York.

Science is a unit and none of us may hope to more than partially master any of its smallest branches. Nevertheless we must never let our method of study become so myopic that we do not take in everything within our ken in the major field and endeavor to correlate facts from distant fields which may bear upon our own. Radium was found only after long search, but would never have been found at all but for the unaccountable radiations which were observed in distant fields. Helium was found in the sun, then on earth, and now we may safely fly with it. A rigidly secularized science would never advance. We must look for phenomena far outside of optometry and discover what it may mean in our own sphere of work.

PRESBYOPIA NOT A SENILE CHANGE

Dr. J. W. Parker,
Kansas City, Mo.

The practice of optometry, like other activities of life, is constantly bringing us in contact with inconsistencies, a lack of harmony, cases in which one supposed fact fails to harmonize with another. Life seems to be an eternal search for consistencies and we feel almost angered when we find two apparent truths contradicting each other. We feel that one truth should always fit in with another truth, that a whole bundle of them, in fact, should be susceptible of being fused into a perfect whole. I like to think of a collection of truths as being like the component parts of a complicated piece of machinery built on a highly developed interchangeable basis. When the time comes to assemble there will be no waste of time in filing, turning or forcing.

As a matter of fact, a collection of real facts will always assemble in just that manner. One will always fit in with another without a hitch and form a perfect whole. When two apparent facts fail to harmonize we can rest assured that one is not a fact. What to us is an apparent inconsistency is only a lack of understanding on our part.

I remember of reading, years ago, in one of my text books, this statement (Subject Presbyopia): "The patient with emmetropic eyes will usually become presbyopic between 40 and 45. A slight degree of myopia might delay the need of glasses for reading for several years while the hyperope would naturally feel the need of them sooner." Sounds consistent, does it not? A few days after reading the above, a gentleman of fifty presented himself with the statement that "Just lately, he had commenced having trouble in reading at night." Looking for the consistent thing, one would naturally expect to find about 1.00D of myopia. Imagine my feelings when he accepted plus 1.00D spheres for distance. According to the above theory, with that much hyperopia he should have had all kinds of trouble ten years before. Since that day I have had literally hundreds of similar cases but they no longer worry me. There can be no effect without a cause and now, when I find a discrepancy between two apparent truths I know that I must at once get busy and find out just what are the facts. Accepting all that we have been taught about the accommodation, it would naturally seem that a hyperope of fifty having an error of 1.00D should have all of the normal presbyopic troubles, with those of the refractive error added to them. The apparent inconsistency in these cases lies in the fact, I believe, that our present theories on presbyopia are incorrect. Presbyopia is not a senile change. It is not even a change. It is only a milestone in the path of a change that started in youth. The change that takes place in the accommodation between the ages of 40 and 45 is exactly the same change, and in a very likely degree, the one that took place between the ages of 10 and 20. Surely it was not due to senility then. Why commence calling it a senile change at 40? And why this loss of accommodation, anyway? Have we ever heard of a patient losing the use of the recti muscles because of age? We lose our accommodation, not from

senility, but *From Lack of Exercise.* It's about the only function of the body on which we place a limit as to use. We may not always limit the number of hours per day but we do deliberately limit the power exerted. The child of ten, has, normally, 14 dioptres of accommodative power. At that age, or before, the child is told to hold printed matter 14 inches from the eyes. In emmetropic cases this means limiting the accommodative act to 2.75 dioptres, about one-fifth of the maximum. Now, at the very instant we place a limit on the power to be exerted by any muscle, its maximum strength will begin to decrease to that limit. On the other hand, if, at the time the limit is set, the maximum strength is below the required limit, the muscle will, through repeated efforts, increase in strength. If already above the limit set, it will deteriorate. The hyperope sets the same limit in the distance the print should be held from the eyes but unconsciously he fails to set the same limit on the amount of muscular innervation involved. This will perhaps explain why the hyperope who finally reaches the presbyopic age—or stage—almost always brags about having had such wonderful eyes. In fact, we find mighty few cases of the eyes themselves having been ruined through neglect in straight cases of hyperopia. It is only when an astigmatic error is also present, or in anisometropic cases that fighting off glasses becomes dangerous. I am speaking now of danger to the eyes. Reflex troubles from the eyes is another matter. Hyperopia means a constant waste of neurocity which may lead to serious consequences. Theoretically, at least, it should always be corrected.

Inasmuch as the majority of people have refractive errors for which glasses should be worn, and as it seems more practical to add the required amount for presbyopia than to attempt to ward it off, I am not advocating the idea of prescribing exercises for that purpose—at least in the average case. I am morally certain, however, that presbyopia is absolutely preventable. Experiments made along this line have confirmed the idea but have been insufficient in number to give a definite idea as to how much the accommodation would need be exercised, or even the age at which the exercises should begin. For those of you who are approaching the age where presbyopia might be expected, and who wish to test the soundness of my theory, I suggest that you carefully measure your P. P. and record the figures. Then, for a week, exercise the accommodation two or three times a day by bringing the print closer and closer to the eyes. As soon as the point is reached where the print becomes indistinct, relax by looking at some distant point. Do not carry the exercise too far as the results will be negative. At the end of the week, again take the P. P. and you are certain to find the amplitude increased. Just as in exercising the recti muscles, you will find it much easier to add the first dioptre to the amplitude than the second. This principle is true of all muscular exercise and should not discourage those who really wish to obtain further results.

OPTOMETRIC NOTES

ON THE CORRECTNESS OF USING THE RED DISC IN MAKING A TONICITY TEST

Walter I. Brown, Opt. D.
New Bedford, Mass.

After two years' experiment I am able to state that the use of a Red Disc over one eye in making a tonicity test will have the effect of increasing esophoria or decreasing exophoria at least 1 prism dioptre and in many cases up to 4 prism dioptres. Out of two thousand cases in which this test was made the above changes were noted in a few more than 1,800 cases. This is an interesting point and one which should prove a fruitful field for optometric research. It is said that the use of a green disc will have in most cases just the reverse effect. These things being true the writer naturally questions the advisability of the use of any colored disc in making this test.

THE CORRECTION OF ASTIGMIA IN RELATION TO THE PREVENTION OF CATARACTS

Charles I. Saks, Opt. D.
Syracuse, N. Y.

Recently, much discussion has come up as to whether astigmia shall be corrected, irregardless whether or not the patient will accept such a correction. Regarding this we must not forget that we are dealing with live human bodies about which no one knows too much. Why force an astigmatic correction on a patient unless we are pretty sure the patient needs it?

The best possible way I know of, to find the true astigmatic error objectively, is to keep on increasing prism power, Base In, before the patient's eyes, until no more plus power can be added. (The static test, as well as the dynamic, is made, both eyes of the patient uncovered.) Then make the static test without the prism. If there is then found a perceptible difference in the astigmatic finding, that is, more or less astigmia being found with than without the prism in place, then we can suspect the apparent astigmia is due to sectional accommodation. Static retinoscopy will take on another aspect if executed in this manner. The refractionist will have a better foundation upon which to work out this case.

The difference in spherical quantity between the two methods should not exceed one and one-half dioptres. If the prism Base In method shows more than one and one-half diopters of plus power, more hyperopia is present beyond a doubt.

Doctor Ryer states that an uncorrected astigmia will be a predisposing cause of cataract. If I understand him correctly, he states that the frequent adjustments of the lenses (during accommodation) in uncorrected astigmia, sets up an irritation, eventually causing cataract.

I have the greatest respect for Doctor Ryer, I look up to him as a man well learned in optometry. But this is one time that I disagree with him. My reasons are as follows:

1. If frequent adjustments in the lens of an uncorrected astigmatic eye cause irritation enough to produce cataract, then why don't all uncorrected hyperopes have cataracts?

2. Every human eye, ametropic (corrected and uncorrected) and emetropic, makes a countless number of accommodative adjustments during the time it is in use. Why doesn't the irritation set up in these cases cause cataracts?

After all, what is an irritation? An irritation is nothing more than an increased cell activity. There is an increased metabolism. The nutritive and excretory processes are carried on at a faster pace. The increased secretion of the lens cells helps to ward off the cause of the irritation, which in this case is the rubbing of the lens layers over one another. The fluid simply keeps the layers from direct contact. This is nothing more than the principle of lubrication, that is, leaving two or more surfaces passing over one another without coming into actual contact with each other.

The irritation set up during accommodation is simply a normal physiologic irritation. That is all. When the layers of the lens rub against one another, the cells are stimulated to great-

er activity. This is probably very essential. If this were not so then the cells would probably atrophy from the lack of stimulation. This fact is supported by the physiological laws that "function makes structure." The only possible result from this accommodative irritation that may lead to cataract is this: the increased fluid secretion may not be carried off quickly enough with the result that a congestion will be set up in the lens thereby interfering with irritation.

THE NEEDLE-HOLE TEST

F. McFadden, Opt. D., F.A.A.O.
Athol, Mass.

The March, 1926, issue of this Journal contained a short article entitled: "An ocular experiment," wherein was described what could be seen through a minute orifice in a thin metal disc. These holes should be far enough apart so that one cannot see through more than one at a time, and they should be of different diameters. One should be made by the very slightest possible prick of a very fine needle, the next when it has passed a bit further through, and the larger the possible diameter of the needle. Scour off the burrs on a fine oil-stone so as to leave truly "knife-edge" holes. Clean perfectly, and then follow out the experiment.

This tiny hole, with all possible illumination one can get, is truly a high-powered lens, placed so as to magnify and bring into universal focus everything between the object and the retina. It is a splendid diagnostic instrument, purely subjective, and a test which will hold one's interest. Several optometrists have written the writer regarding this experiment and he would like to hear from others who have made and used the disc.

THE HAND SLIT LAMP

G. L. DuPlessis, Opt. D.
Minneapolis, Minn.

Characteristic of Bausch and Lomb construction is their new hand slit lamp. This instrument is used to explore the various media of the eye by oblique illumination. It consists of a triple aplanatic magnifier of 7X mounted by a flexible arm to the instrument itself. The slit lamp is composed of condensing lens system illuminated by an incandescent bulb operated by either a battery or a rheostat. Back of the bulb is a concave mirror surface silvered, and between the source of light and the lens system is a rotary disc containing a number of appertures of different sizes and shapes. In using the instrument the light with the proper apperture is brought into focus at the point, in the eye, that is to be observed, and at an angle with the line of fixation of the operator. The amount of light used and the angle of incidence of the lamp are best determined by experiments as various opacities will best be observed under certain conditions. The magnifying lens is then brought into focus and abnormalities are noted. While the instrument itself is simple, its proficient use requires practice and the observation of minor details such as the anterior surface of the lens and the angle of the anterior chamber require close observation.

While the slit lamp is of diagnostic importance for the ophthalmologist, its use as such is of doubtful value to the optometrist; however, it is an interesting instrument to possess and it provides information unobtainable with other instruments. While it does not give as much magnification as the more elaborate slit lamps its principle is the same. There has been a considerable amount of literature produced lately on this subject and many of the observations mentioned can be repeated with the hand slit lamp. Most of these articles have been published in ophthalmological journals and some are in book form, and are mostly concerned with the observation of cataracts by oblique illumination.

REPORTED CASES

W. S. Farmer, Opt. D.

Oklahoma City, Oklahoma

Focal Infection In Relation to Ocular Diseases.

Doctor White (1) reports a case of reflex neuralgia. Man, age 45, pain in region of eyeballs, who had two badly decayed teeth with root abscesses that involved the alveolar process. When the diseased teeth were removed and the alveolar processes curetted, the eye symptoms were permanently relieved.

Comment: With pain in and around the eyeballs, patient is likely to consult an optometrist for a change of glasses, but would obtain no relief. X-rays are useful in ascertaining the presence of root abscesses, only when the bone is involved. Transillumination reveals pus in the beginning of the abscess, even before the bone is affected.

Juvenile Glaucoma in Younger Subjects

Dr. W. Moore (2) reported a case of glaucoma following the use of homatropin for refraction, in a woman of 36. The patient was first seen Nov. 26, 1921. Complained of pain in and about the left eye, with poor vision at night. She was wearing +3.00 Sph. for each eye. These lenses gave no relief. Under complete Cycloplegia retinoscope showed +4.00 Sph., for each eye. Eserin was instilled into each eye. The following morning there was great physical distress, vomiting and severe pain in left eye. Myotics had no favorable effect, and operation advised, but refused. Several days later, coincident with onset of Menstruation, pain became worse, and Iridectomy was performed Dec. 2, 1921. Later examination showed vision 3/60, not improved. Five months later there was a history of a sudden blindness in this eye overnight.

Dr. Robert M. Rogers (3) reported a case somewhat similar to the above, of a patient, age 30, who complained of failing vision of the right eye. This eye showed light perception: the left 15/200. Operation was advised but refused. Adrenalin was injected subconjunctivally on three different occasions. No permanent benefit resulted. Later Elliott's trephine operation was performed on one eye. Patient made an uneventful recovery, with very good restoration of vision.

Effects of Methyl Alcohol on the Optic Nerve

Government Ophthalmic Hospital (4) report of 1924. A Hindu boy, age 18, admitted to hospital June 5, 1924, had taken about three ounces of methylated spirit mixed with water on the evening of the 3rd, and again at noon, June 4th. That evening about 7:00 P. M., he was completely blind. On admission, there was no preception of light in either eye. The fundus examination showed that the discs on both sides were somewhat hyperemic and swollen. The temporal edges were sharp, but the nasal edges hazy and obscured, merging with the surrounding retina which was pale and edematous. Both arteries and veins were engorged and the finer twigs everywhere tortuous. The patient was kept under observation and gradually the edematous of the disc and retina subsided, by the 7th of July, a month after admission to hospital, vision, right eye 6/24; left eye 6/6.

Paralysis Mydriasis

Dr. George F. Brooks (5) reported a case of J. R., age 9, who on July 27, 1925, was hit with an apple on the right eye. Patient was seen one hour afterwards. V. in right eye 20/100, left eye 20/15. The pupil of right eye was irregularly dilated and did not react. One month later, after medical treatment, vision in right eye was 20/15. Pupil dilated from 4 to 6mm. Diagnosis, paralysis mydriasis. This is apparently one of those cases that will eventually get well.

Due to a different cause, but somewhat similar was a case reported by Dr. G. F. Libby (6), where a child of 14 whose unequal pupils had become of equal size, after wearing a correction Ametropia of both eyes, and Amblyopia in one eye. In 1919 at age of 8 years, the lenses required were right, +3.00 Sph. ()+1.00 Cyl. ×90.

Left eye +1.50 Sph. ()+.50 Cyl. ×90. Right pupil was 5mm in daylight, the left 1.5mm. By 1923 refraction was, right, +7.00 Sph. ()+1.00 Cyl. ×90. Left, +2.50 Sph. ()+.62 Cyl. ×90. The corrected vision of right eye dropped from 5/15 to 5/30 while vision of left eye was slightly improved. In June, 1921, however, the pupils had become of equal size. After a few months of alternating equality and inequality.

Double Paralytic Divergent Strabismus.

Dr. J. F. Fulton (7) reported the following case: Mr. C. J., colored, widower, age 58. When a boy he contracted syphilis in Chicago, and was treated by Dr. Kemp of that city. The internal rectus of left eye became paralyzed in 1911, several years after this, the internal rectus of the right eye became paralyzed also. Vision each eye 20/30. Wassermann test showed a plus 4 reaction. There seemed to be a complete paralysis of all the extrinsic muscles, except the external rectus. Because of this general involvement a tenatomy did not seem advisable.

Burniston (8) reports a case, lady, 75 years of age, wearing O. D. +3.00. O. S. +2.75, with which she could see distance fairly well, and also read a newspaper quite nicely. Refraction proved to be as follows: O. D. +.75. O. S. +2.00. This patient was evidently using the right eye for near work, and the left eye for distance. While this was not a correct procedure from a physiologic optometric standpoint, but since the patient was comfortable and satisfied, it would be a mistake to begin to change habits and refractive conditions in these eyes at this particular age, just because some text book said so. It is this individual exception-to-the-rule cases, that makes optometry human and interesting.

Ocular Toxemia Malaria.

Drs. White and White (9) reported the following case: M. B., age 26, female. Refraction, O. U. +2.25 Sph. Vision with correction 20/15. 15 degrees of Exotropia for distance, and horizontal nystagmus, blood pressure low. With +4.00 Sph. O. U. Jaeger type vision was No. 1, but this fogged distance vision to 20/50. The laboratory reported a positive malarial. Results all symptoms cleared up, vision with correction distance 20/30 Jaeger 2 and 3 respectively. Had been wearing bifocals. Finally after 6 months treatments secured negative malarial test. The accommodative and convergence trouble in this case was no doubt due to exhaustion. Had the refractionist been consulted earlier in this case this trouble could have probably been avoided as Dr. Geiger (10) has ably pointed out the relation of eyestrain which seems as much the cause as the effect in this case. For had the nervous energy not been wasted through eyestrain the physical and resisting powers would have been up to par, and more able to withstand the onslaught of the malaria.

BIBLIOGRAPHY

(1) **White, W. B.** The Eye, Ear, Nose and Throat Monthly. Apr., 1926. Vol. 5 No. 3, page 160.

(2) **Moore, W.** Proceedings Brooklyn Ophthalmological Society, Amer. Journal Ophthalmology. Vol. 9, No. 4, page 276.

(3) **Rogers, R. M.** Proceedings Brooklyn Ophthalmological Society, Amer. Journal Ophthalmology. Vol. 9, No. 4, page 276.

(4) **Government Ophthalmic Hospital.** American Journal of Ophthalmology. Vol. 9, No. 4, page 309.

(5) **Brooks, G. F.** Amer. Journal of Ophthalmology. Vol. 9, No. 4, page 281.

(6) **Libby, G. F.** Amer. Journal of Ophthalmology. Vol. 9, No. 4, page 289.

(7) **Fulton, J. F.** Amer. Journal of Ophthalmology. Vol. 9, No. 4, page 279.

(8) **Burniston, A.** Opt. Journal and Review. Vol. LVII, No. 16, page 22, April 22, 1926.

(9) **White, D. W.** and **White, P. C.** Eye, Ear, Nose and Throat Monthly. Vol. No. 5, No. 3, page 135. April, 1924.

(10) **Geiger, L. S.** Opt. Journal and Review. Vol. LVII, No. 18, page 23, May 6, 1926.

BOOK NOTICES

New Books for review should be sent to Dr. E. O. Fjelstad, 209 Yeates Building, Minneapolis, Minnesota. Only Books of such nature as to be of interest to optometrists will be used in this department. Optometric and Ophthalmic publications that have been issued in the past and which are still procurable through their publishers will also be reviewed, from time to time, as space permits.

CONTRIBUTIONS TO OPHTHALMIC SCIENCE. Dedicated to Dr. Edward Jackson on His Seventieth Birthday. By His Pupils and Colleagues in the United States. Edited by **W. M. Crisp, M. D.,** and **W. C. Finnoff, M. D.** Published by the George Banta Publishing Co., Menasha, Wisconsin. 320 pages. Illustrated. 1926.

"Contributions to Ophthalmic Science" is a collection of writings by some forty ophthalmologists in this country and dedicated to Dr. Edward Jackson of Denver, Colorado, himself a prolific writer, profound student of all things ocular and one of the best known ophthalmologists in the United States.

Doctor Jackson is editor of the American Journal of Ophthalmology, one-time professor of Ophthalmology in the University of Colorado, has held chairmanships and presidencies of various ophthalmological societies and committees, is author of some six hundred articles in technical and scientific journals and is credited with the introduction in this country, of the technic of refraction by means of the shadow test, or skiascopy.

"Contributions to Ophthalmic Science" contains a variety of subject-matter and is very interesting. Some of the subjects are: Abnormal Upper Lid Movements; The Norms of Convergence; Percentage Notation Between Macular Acuity of Vision and Macular Perception; Studies in Ocular Fatigue; Lens Capsule Opacities, and a variety of other pathological studies.

We doubt if this book can be obtained through the regular channels as we obtained our copy as a part of our subscription to the Journal of which Doctor Jackson is editor, but if those who have no copy of "Contributions" can borrow the same, the reading of it will represent time well spent.—E.O.F.

ABSTRACT DEPARTMENT

Optometric and ophthalmic Journal articles and reprints to be abstracted should be sent to Dr. G. L. DuPlessis, 209 Yeates Building, Minneapolis, Minnesota. Only papers of interest to optometrists will be reviewed in this department.

The Norms of Convergence, Alexander Duane M. D. Contribution to Ophthalmic Science, p. 341. George Banta Publishing Co., Menasha, Wisconsin, 1926.

This paper on the Norm of Convergence is the result of a study to determine the normal converging power. This power is represented by the angle through which the eye can turn inward when both eyes are converged to their utmost. It is measured by the closest point to which a fine object, accurately fixed by both eyes, can be brought without either eye diverging. The angle is called convergence adduction.

To find convergence adduction in any given case Duane gives this formula: tan. c = d/2PcB.

c=Convergence Adduction.

d=Interaxial distance; *i.e.* the distance between the two visual axis when at a state of parallelism.

PcB=Near point convergence distance measured from the intercentral base line (*i.e.* the line connecting the center of rotation of the two eyes).

To avoid much computation a table has been compiled by Dr. Duane giving the powers of converging adduction for interaxial distances ranging from 55mm to 69mm and for convergence distances ranging from 33mm to 659mm.

From studying a number of cases the following points of interest were revealed. First, that the interpupillary when correctly measured may be taken for the interaxial distance. Second, that in the majority of cases observed to pupillary distance in adults ranges from 62 to 63mm and in children it ranges from 50 to 55mm. Third, that in a great majority of cases (ages from 16 to 40) the convergence adduction ranged from 18 to 32 and in 45 per cent of the cases it was from 23 to 27, which is considered as medium. In 36 per cent it was low (18 to 22) and in 16 per cent it was high (28 to 32). Fourth, in subjects over 40 years 22 per cent had a convergence adduction of 17 or less, in 39 per cent it was low from 18 to 22 and in only 21 per cent it was of medium amount 23 to 27. Convergence adduction when found to be high or very high was just as frequent amongst elderly subjects as in adults under 40.

A patient with less than 18 of convergence adduction presents a condition of convergence insufficiency and such a condition is made manifest by asthenopia and other evidence of imperfect or difficult function.

Some of the conclusions drawn by Dr. Duane as a result of the study of 800 cases are:

1. That the true measure of the converging power is the convergence adduction, or the angle through which each eye turns in when converging with its fellow.

2. To determine the convergence adduction we must know the convergence distance (PcB), or the distance of the convergence near point from the inter-central base line, also the interaxial distance (d).

3. A PcB over 90mm in children and over 95 in persons between 16 and 40, or over 110mm in persons above 40, indicates a suspiciously low converging power and if persistently beyond these limits must be regarded as abnormal. When as great as this, it is often associated with asthenopia or other symptoms indicative of convergence insufficiency.

4. In ordinary cases the converging power runs from 9 to 20 meter angles, and when this power is very good it runs from 20 to 25. A convergence below 9 or 10 meter angles is to be considered as abnormal.

5. The prism convergence (adduction so called) or ability to overcome prism base out is a very unsatisfactory measure of converging power. As a primary test it is quite misleading. The results obtained in different cases are not comparable, neither are they accurate.—J. I. K.

School Lighting, James Kerr M. A., M. D. The Optician (British) Vol. LXXI No. 1838, p. 201, 1926.

Dr. James Kerr, late school medical officer for London, introduced a discussion on school lighting at a meeting of the Illuminated Engineering Society, at the House of the Royal Society of Arts.

Discussing the matter of school lighting and its effect on children's vision, Doctor Kerr claimed that actual observations had proven that a child makes a considerable effort to recognize what it can see, while an adult sees the form and shape of an object at a glance. The merest hint and association and memory will help recognize the object or word. Not so with a child, who pieces the details together in order to recognize or assimilate the whole. It is, therefore, highly important that the details be well and evenly illuminated.

By actual examination and observation it was found that during the first half of school life one-third of the students failed to attain normal vision and reports of the Board of Education of Blackburn show that only a similar number of all the pupils have normal vision and that 10 per cent of the pupils acquire myopia before leaving the primary school.

From 5 to 7 foot candles of illumination is recommended as a fair amount for schools. Below that amount the child may still be able to do his work but under an unfair load or effort.

The color scheme of the school rooms as well as the kind of lights used are to be considered as important factors in improved illumination.—J. I. K.

SPECIAL REPORTS

OPTOMETRIC JURISPRUDENCE

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From the Cyclopedia of Law and Procedure we glean the following, "Jurisprudence est divinarum atque humanarum rerum notitia justi atque injusti scientia," which translated signifies "Jurisprudence is the knowledge of things divine and human, the science of what is right and what is wrong."

By taking the Webster definition and inserting the word "optometry" in place of "medicine" we have as a definition of optometric jurisprudence, "That branch of juridical law which concerns questions of optometry."

It may seem presumptive for a layman to attempt to expound or explain matters of a legal nature, and the only excuse offered is that up to the present nothing of this kind has been attempted and there seems to exist a distinct need.

Now that optometry has obtained one or another form of legal recognition in forty-eight states and has also been the subject of several exhaustive court decisions, it is well that we see just what our standing is, what our rights are, and what constitutes the line of demarcation between our work and that of other professions.

The definitions of optometry vary somewhat, but to all intents and purposes their meanings coincide closely. For example, the law in Minnesota, the first State to enact an optometry law, reads:

"Section 5. Any person shall be deemed to be practicing optometry within the meaning of this act * * * who shall employ any means for the measurement of the powers of vision or the adaptation of lenses for the aid thereof, or who shall in the sale of spectacles or eyeglasses or lenses use in the testing of eyes therefor, lenses other than the lenses actually sold."

This definition was amplified by the amendments as passed by the 1925 Legislature as follows:

"Section 5. Any person shall be deemed to be practicing optometry within the meaning of this act * * * who shall employ any means for the measurement of the powers of vision or the adaptation of lenses or prisms for the aid thereof, or have in his possession testing appliances for the purpose of the measurement of the powers of vision, or diagnose any optical deficiency or deformity, visual or muscular anomaly of the human eye, or prescribe lenses, prisms or ocular exercises for the correction or the relief of same, or who holds himself out as being able to do so."

The amended law in Michigan contains a definition which follows very closely the one originally proposed in Texas, but subsequently changed during the passage of the Act in the Legislature. It reads:

"Section 7. The practice of optometry is hereby defined as being either one or any combination or part of the following:

"A. The examination of the human eye to ascertain the presence of defects or abnormal conditions which may be corrected, remedied or relieved or the effects of which may be corrected, remedied or relieved by the use of lenses or prisms.

"B. The employment of objective or subjective physical means to determine the accommodative or refractive conditions or the range of powers of vision or muscular equilibrium of the human eye.

"C. The adaptation or the adjustment of the lenses or prisms to correct, relieve, or remedy any defect or abnormal condition or to correct, relieve or remedy the effect of any defect or abnormal condition of the human eye, or,

"D. The employment of objective and subjective means for the examination of the human eye for the purpose of ascertaining any departure from the normal, measuring the powers of vision and adapting lenses for the aid thereof."

In Texas, the last State to enact the law, we find this definition:

"Section I. The practice of optometry is hereby defined to be the employment of objective or subjective means, without the use of drugs, for the purpose of ascertaining and measuring the powers of vision of the human eye, and fitting lenses or prisms to correct or remedy any defect or abnormal condition of vision. Provided that nothing herein shall be construed to permit optometrists to treat the eyes for any defect whatsoever in any manner or administer any drug or drugs externally or internally, nor to prescribe drug or drugs or physical treatment whatsoever, unless such optometrist is a regular licensed physician or surgeon under the laws of the State."

This also was amplified by the 1925 Legislature and we find the law reading as follows:

"Sec. 13-c. For the purpose of this Act, the words 'Ascertaining and measuring the powers of vision of the human eye,' as employed in Section One (1), of Chapter 51, Acts of the Thirty-seventh Legislature, First Called Session shall be construed to include,

"First. The examination of the eye to ascertain the presence of defects or abnormal conditions which may be corrected, remedied, or relieved of the effects of which may be corrected, remedied or relieved by the use of lenses or prisms, or

"Second. The employment of any objective or subjective means to determine the accommodative or refractive condition, or the range or powers of vision or muscular equilibrium of the human eye, or

"Third. The employment of any objective or subjective means for the examination of the human eye for the purpose of ascertaining any departure from the normal, measuring its power of vision or adapting lenses or prisms for the aid or relief thereof, and it shall be construed as a violation of this Act, for any person not a licensed optometrist or a licensed physician to do any one act or thing, or any combination of acts or things named or described in this Session; provided, that nothing herein shall be construed to permit optometrists to treat the eye for any defect whatsoever, in any manner, not to administer any drug or physical treatment whatsoever, unless said optometrist is a duly licensed physician and surgeon, under the laws of this State.

"Sec. 13-d. For the purpose of this Act the words 'and fitting lenses or prisms,' as employed in Section One (1) of Chapter 51, Acts of the Thirty-seventh Legislature, First Called Session shall be construed to include:

"First. Prescribing or supplying, directly or indirectly, lenses or prisms, by the employment of objective or subjective means or the making of any measurements whatsoever involving the eyes or the optical requirements thereof;

"Second. The adaptation or supplying of lenses or prisms to correct, relieve or remedy any defect or abnormal condition of the human eye or to correct, relieve or remedy or attempt to correct, relieve or remedy the effect of any defect or abnormal condition of the human eye.

"Third. It shall be construed as a violation of this Act for any person not a licensed optometrist or a licensed physician to do any one thing or act, or any combination of things or acts, named or described in this Section."

These three definitions include all the provisions, with some minor exceptions, of all of the laws now in force regulating the profession.

In many States these laws have been held constitutional and in Illinois, where the first law was declared invalid, there is now on the statute books a law drafted in conformity with the Supreme Court's decision.

In Texas an attack on the law has already been repelled and a brief consideration of this matter will be of interest.

The Texas Medical Practice Act provides:

"Any person shall be regarded as practicing medicine within the meaning of this act:

"1. Who shall publicly confess to be a physician or surgeon and shall treat, or offer to treat, any disease or disorder, mental or physical, or any physical deformity or injury, by any system or method, or to effect cures thereof.

"2. Or who shall treat, or offer to treat, any disease or disorder, mental or physical, or any physical deformity or injury, by any system or method or to effect cures thereof, and charge directly or indirectly, money or other compensation."

Prior to the passage of the Texas Optometry Law the Court of Criminal Appeals held that the defendant having admitted that, "he examined the eyes—by means of a trial case and test cards and charts and with the retinoscope, and ophthalmometer and ophthalmoscope to determine proper glasses for the optical requirements for the eyes—and did then and there make a charge for his services in making such examination, and making the glasses called for by such examination," was guilty of violating the medical practice act.

Subsequent to the passage of the Optometry Act the Court held, "By the plain provisions of the acts of the 37th Legislature (Optometry Law S. B. 51), the particular acts done by the appellant (defendant) and which were held by us to have been practicing medicine, were included in the definition of optometry."

The last clause of Sec. 17 (of the Optometry Law) reads:

"And providing that the title of optometrist or practice, as defined in Section 1 of this Act, shall not be construed as practicing medicine or surgery, or indicating the practice of medicine or surgery."

Subsequently the Court held that the Optometry Law does not conflict with that provision of the Texas Constitution which says:

"Section 31, Art. 16. The legislature may pass laws prescribing the qualifications of practitioners of medicine in this State, and to punish persons for mal-practice, but no preference shall ever be given by law to any schools of medicine."

In Pennsylvania the Court held that the practice of optometry is not the practice of medicine, but, in this connection, must be carefully considered first, the wording of the Pennsylvania Medical Act and, secondly, that the optometrists who so ably testified clearly

demonstrated that orthodox optometric practice did not treat or offer to treat or diagnose.

The words, "effects of defects," appearing in the Michigan definition are original with the writer and were used for the purpose of technical accuracy as regards our practice.

When an optometrist determines that the defect of his client is hypermetropia he prescribes convex lenses. These lenses cause the rays of light to focus perfectly upon the retina of this mechanically imperfect eye, hence correct both the vision and such other sequelae as may be present.

When the lens is removed the eye is in exactly the same condition as before, hence it is the effects of the defect and not the defect which has been corrected in this and in the majority of our cases.

This reasoning does not apply to accommodative asthenopia, as here the defect is frequently corrected and for that reason the correction of both "effects of a defect" and "defect" were included in the definition.

This brings us then to what is included in strictly legal optometric practice.

Surely the determination of the visual needs, the absence or presence of any eye defect, and the determination whether or not any disease is present in the eye (as this would affect the "powers of vision" mentioned in the Texas Law) are all included.

Further than this, prismatic or orthoptic exercises are strictly legal because the law permits "the fitting of lenses or prisms to correct any defect or abnormal condition of vision" and it matters not whether these are prescribed for constant or temporary use.

Again we find that there can be no valid objection to the use of instruments like the "tonometer" for measuring the intraocular tension or the "perimeter" for taking the fields, as both of these have direct bearing on the powers of vision.

Instruments or methods offering means of general diagnosis or treatment whether by light rays or massage, vibrations or hydro-therapeutics, do not come within the provisions of optometry laws. There may be States in which their use is not illegal, but they are not authorized by any Optometry Statute that has come under the observation of the writer.

Just recently some splendid methods have been suggested for the development of the eyes coming under the head of "amblyopia ex anopsia" and there can be no question about the legality of such procedure. It is more than likely that as time goes on and scientific investigation continues great strides will no doubt be made along collateral lines.

In those States which give recognition to "Chiropractic" and various other schools of healing, an optometrist who is licensed both as an optometrist and under another classification can certainly employ the methods of his school of healing, but when he does that he is *not practicing optometry*, but is engaged in his other professional work.

Just recently a pamphlet on "group diagnosis," by a prominent physician, was sent us and we read with interest how the careful investigations of a number of different physicians and technicians should be co-ordinated for the purposes of making correct medical diagnosis. How fortunate are we then to be in a profession the exactitude of which is unequaled and rules of practice for which are so well defined?

A prominent ophthalmologist stated recently that he was becoming more and more convinced that refraction should be referred to those who make an exclusive specialty of it. "The busy doctor," he said, "has his mind on operations and treatments. He sees many patients each day and has to visit hospitals. He has not the time to do his refractions as they should be done. I believe in a thorough training for optometrists and I believe that they should handle this work."

In every city of any size there are now one or more "Orthodontists" and "Exodontists" to whom the dentists refer cases that require the straightening of teeth and extractions. In the Law there are many subdivisions such as Corporation Law, Admiralty Law, etc.

The question might here occur as to whether or not this line of reasoning would suggest Medical Refractionists. Certainly not. There is no need for anyone to take the time and energy required in the two years' pre-medical, four years' medical, one year hospital

work, and two or more years' post-graduate work in order to do that which can be mastered in a university course not exceeding four years. Again, his vast amount of knowledge will not be of service to the medical man in his refractions, because in his nine or more years of medical study he will acquire far less information along the lines of refractive procedure than will the student who has completed a modern optometry course.

It seems to us that the legislatures and the courts have done their work well. Optometry has been well defined and its scope has been clearly outlined. If we follow the paths our legal brethren have set out for us we should have no difficulty, year by year, in establishing the necessity and utility of our profession in the minds of the general public and in the minds of other professional men. If, on the other hand, we neglect that which is peculiarly ours and devote our energy and use our time in the pursuit of subjects which may be fascinating, but which in theory and practice are not optometric, we run the danger of losing our identity and exchanging a field in which we are supreme for one which has shadowy boundaries, which is already occupied by those whose training in their work is necessarily better than ours could or should be, and which sooner or later may bring us in conflict with the law and may threaten the integrity and very existence of our profession.

By following in our practice the dictates of Optometric Jurisprudence, the writer believes it will not be long before optometry will reach the plane of undisputed professional practice. When that day comes the combined waiting room of internist, surgeon, ophthalmologist, optometrist, dentist, etc., will be the rule and not the exception and in our belief the general public will receive the best and the most economical service, because in each instance the consultant will receive the advice of a specialist, actually skilled in his own work, and willing to refer patients needing other services to those better qualified in that particular specialty.

The greater portion of this paper appeared in Archives of Optometry several years ago. The author, Dr. Aronsfeld, has added several passages bringing the matter on optometric legislative data up to date, and we appreciate the kind permission of the Keystone Publishing Co. in granting us the right to reprint the article in full.—Editor. —American Journal of Optometry.

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THE EXTRA-OCULAR RESOLUTION

That Optometry should progress and develop along healthy natural lines is a point universally agreed by all members of the profession. There seems to be however, a considerable disagreement as to how this desired result can best be attained.

There are a few men, amongst them a hand-full of political officers of state and national associations, who maintain that in order to safe-guard optometry the scientific work of the profession must be circumscribed by a great number of limitations, and we understand an attempt has been and is being made, to carry out the whims and wishes of this few. **These technical limitations we believe to be detrimental to the profession.**

On the other hand there are a number of progressive optometrists who aim to see the profession developed along broader lines, a group of men who are not content to stop their mind's development now and be satisfied merely with the achievements of the past; a group which wants to carry on study and research with the goal that optometry may reach such high standard of perfection that it will be accorded all of the same privileges and recognition as dentistry. *This body of men which is composed of students, educators and exclusive ethical practitioners will never submit to any such domination or dictation as the extra-ocular resolution or any other resolution of a similar nature which may be passed in the future by any political group.*

The extra-ocular resolution is building a wall around optometry to shut out further knowledge, light and progress. The proof of this statement is to be found in the line of action taken by some to enforce that resolution, as is evidenced in President Kimball's recent telegram to Doctor Spitler which reads "for the success of our educational program all conflicting lectures on extra-ocular tests should be forbidden on the same program with A. O. A. educational program."

Some time ago the writer attended a state optometric convention where appeared on the program two speakers, both men of high accomplishment in their own chosen fields. The first was an optometric educator and lectured on physiological and applied optics. The second was a research worker and very prominent exodontist. He lectured on focal infections and their relation to eye strain. The educational committee felt highly honored and pleased that this dental specialist ac-

cepted the invitation to appear on the program. The optometrists at the convention were very much interested in the information imparted by this second lecturer. Yet if the first lecturer had been furnished by the A. O. A.'s Educational Department the optometrists of that state would have had to choose between having the first or the second speaker, they could not have had both. Yet both men had something of real educational value to give these optometrists.

Science is broad and that one science overlaps the other is a well established fact. On the other hand, has optometry reached the point where it can definitely draw a line showing where one science ends and the other begins? Medicine and dentistry, two older and more developed professions have not undertaken such a task and we believe it certainly most unwise for optometry to set any dogmatic limitations on its future growth.

Extra-ocular resolutions, extra-educational resolutions or any other kind of resolutions limiting thoughts, speech and acts will prove barriers, which will prevent further optometric progress. Forcing such limitations upon the profession will cause much needless dissension and still more internal wrangling amongst organized optometrists.—J. I. K.

THE ZERO HOUR

Optometric schools have closed. School examinations are over, and Board examinations have been confronted with varying degrees of success. Some have safely passed, others confront "conditions," while yet many others must once more wrinkle their brows and compress their brains in study and thought. It is no disgrace, however, to have failed to reach successful passing marks; indeed it is far oftener a distinct blessing which we should not even attempt to disguise. It simply sends us back over the ground to reharrow and reseed for a far richer crop than might have sprouted from a too hasty planting. There is no disgrace in failure, but there is a disgrace in quitting short of full success.

Those who have successfully passed the Board examinations in their own state should not rest contentedly upon laurels thus quickly won, but rather should keep up intensive training during the summer and present themselves before boards of other states during the coming fall, winter and spring examinations. So long as state boundaries circumscribe the privileges of professional men and bar them from success in other valleys than those into which they were born, we must prepare ourselves by thus bursting such narrow barriers. The principle is wrong, dating us back to medieval times when guilds were strong and when men must expect to live always in the home or village of their ancestors. This wrong will not be righted until those who are capable of passing a board of examiners in one state will automatically be acknowledged as both safe and fit representatives of their profession in other states where the standards of excellence are at least equal. This will come about within a very few years, for there is no sense or justice in circumscribing the activities of scientifically trained men on the one hand while placing no barrier to tradesmen, artizans, laborers, or other callings on the other. But by all means: Take as much territory as you can, occupy as much land as possible, and do it while still strong in mathematics, as nothing so quickly slips from our grasp as this juggling of figures.

Be not dismayed by the type of questions proposed by boards. It is true that a mass of these questions are little else than antiques, having been devised many years ago, and have been handed down successively from board to board, slightly revamped in certain instances, while also having passed back and forth among states. These questions are often highly puzzling, lending themselves to several interpretations, any one of which but the meaning which some particular examiner favors may be blue-penciled by him. But let not the candidate be discouraged; rather study the examiner and his conceptions of the question quite as closely as the letter of the text. It may have been years since the examiner was in school, and many changes have occurred in meanings and values of words and terms. Life is largely a study of human nature anyhow. The writer has had occasion to review some three or four thousand of examination ques-

tions and is free to state that there are not a few "peculiarities" offered. But let the candidate not despair, but rather work the harder.

Do not assume the position that the board is unfair or unfriendly in its attitude, but rather that they are our best friends. Were it not for such restrictions, there would be no partition between the scientifically trained man and the cheap quack or charlatan. It is but yesterday that we dispensed with these mountebanks, and we must admit that there are some of the gentry still in existence. While our individual aim is to "get by the board," and our interests center upon passing safely, in one or more states, let it sink deeply into our souls at the beginning that the standards of excellence set by the state is the minimum possible allowance of education, and is never to be considered as ultimate individual aims. Because one may live his life, paying 75% or 80% of his expenses, beating society out of the balance, the so-doing is surely no mark of manhood; neither is a mere passing mark of like proportions any other than a small debit balance which the boards reasonably expect will be paid off in due time. Neither is it proper that a man should merely live and pay his expenses, contributing no bank balance, giving no other service but that which is absolutely necessary; and in at least an equal measure it is incumbent upon a scientifically trained man to very largely increase his store of knowledge to the very utmost in order to return to society enough to have made his life worth while to fellow man. While board requirements are the very minimum, with a considerable debit allowance, the maximum rests wholly within ourselves to accomplish. All the colleges in the world, together with all the professors and instructors thereof, can do nothing whatever for a student but teach him how to study, how to work for his own interests. Knowledge cannot be transmitted by pouring; heads cannot become filled with knowledge, although a vast amount of misinformation may be collected and appears to occupy space which could be much better used for serviceable purposes. It is absolutely impossible to know too much about our subject, particularly about optometry, which is so new that we are even yet in the act of roughing out a path as little known as Fremont's was late in last century.

The college graduate in law, medicine, engineering, electricity, even in optometry, is merely a "raw product" ready for the next process. His diploma is of no value whatever to anyone but himself, and not even to him if it stands for his ultimate attainment, since it could mark little else than the very tombstone of his soul, its place of burial, its last resting place, omega. It is a fact, however, which we are obliged to grant, that there are many men, even some optometrists, who assume that their smartness in passing a board of examiners marks them as having reached the very pinnacle of mental endowments and that they need never study again from books, but merely pick up "experience" in ways that are dark and mysterious.

There is much in experience, we grant, but it must be qualified by recognizing its source. The little that one man can glean in life through his one single and minute point of contact with it is little indeed. If he wisely writes out his experience he gives his life to his fellows, but this means writing books, papers, giving lectures, and in multitudinous ways disseminating that which he has acquired. One who studiously adds to his own contactual experiences of life that of many others who have set them down in books, will be vastly enriched. We may thus mix the long past with our present lives, so guiding our futures. We may thus mix the lives and works of men far outside our own field, thus widening its boundaries, deepening the soil, eradicating weeds, selecting stock, improving strains, even bringing in far better varieties. Such is knowledge, modern conceptions of science, and our proper aims, as against merely staking out corners and taking up squatters' rights.

There are titled and untitled optometrists, just as there are crowns of glory and halos of piety. There are doctors of optometry, where fortuitous circumstances have yet permitted, while there are other men unfortunately placed as to space, or possibly unfortunately born as to time, who must muddle along without a "degree." Some are exempt, but nevertheless

registered, while in many civilized countries like France, Germany and England, they are still denied even this privilege. Do these men despair? Do they repine because they are not permitted to know more? Nay, rather they study all the harder in order to have a higher skill and knowledge than men in competitive work.

It is to the everlasting honor of these sturdy woodsmen, with their keen vision, their long-range rifles, and their unflinching courage, the fathers of our race, the fathers of ourselves, that they not only carved schoolhouses from the living forest wall, but they carved optometry from the living rock beneath their feet. It is the foundation which they builded, and are building today, undegreed, undismayed, untrammeled, and with fixity of purpose, that we see rising here and there the schools and universities in which the degreed representatives of their families may receive a spiritual impetus. All honor, the highest possible honor, to the exempt registrant of optometry—if he is a worthy representative, but if he is unworthy he is unhonored and unsung among his countrymen.

There is much foolishness taught in schools and colleges, just as there is much foolheadedness in life. One may be educated and be a fool, an educated fool. One may be uneducated in the collegiate sense of being cultured in languages, history, music, art or other branches, and yet be a highly educated and cultured man or woman. One may turn to Edison, Westinghouse, Brashear, Ford and hundreds of present and past high exponents, to find men who had not alone attained much money but high mental endowments. Colleges never taught these men how to think, they taught themselves. Thinking is our job, it is all there is of it, reduced to its essentials. Studying our own experience is good, supplementing it with the experiences of others by reading their books. This causes us to doubt, which is paramount to finding a reason for their rightness or wrongness in comparison with our personal observations. We both gain and lose in the process, but mainly we round out fuller into symmetrical form. No man is too old to cease studying, too old to learn, knows too much, nor knows enough.

F. McF.

THE CROSS MEMORIAL FUND

A drive has recently been started to raise a fund to be known as the Cross Memorial Fund. The fund committee is made up of Dr. Frederic A. Woll, New York, Chairman, Dr. Charles Sheard, Minnesota; Dr. George Schnider, California; Dr. Howard C. Doane, Massachusetts, and Dr. Wm. S. Todd of Connecticut.

With the personnel of this fund committee the campaign is assured splendid management. Already more than $1,100.00 has been subscribed and nearly all of this amount has been paid in. This is a good start, and the committee hopes to hear from many other optometrists.

The object of raising this fund is twofold. First, to erect a modest but substantial monument over the grave of the late Doctor Cross. Second, a scholarship fund will be created, which will go alternately from one Class "A" Optometry School to another. The scholarship to be awarded to worthy students of high standing. The fund will always remain in control of a committee made up of optometrists and will be entirely free from existing organizations.

It is hoped that all optometrists will respond to the call and contribute liberally, to help perpetuate the name of Dr. Andrew Jay Cross, the founder of Dynamic Skiametry.—J. I. K.

REPORTS AND ANNOUNCEMENTS OF SOCIETIES

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Reports of Society Proceedings in Iowa should be sent to Dr. D. A. Kinney, Charles City; in Maryland to Dr. J. F. Andreae, Baltimore; in Minnesota to Dr. J. A. Large, Winona; in Nebraska to Dr. C. A. Perrigo, Freemont; in North Dakota to Dr. A. S. Anderson, Williston; in Oklahoma to Dr. E. B. Alexander, Duncan, and in Vermont to Dr. L. P. Folsom, So. Royalton.

VISUAL SURVEY WORK

The first of the year our readers will recall the announcement by Dr. F. P. Barr of a contemplated educational course suitable for training in Visual Survey and Service Work.

The depressing business conditions warranted some delay. Times are somewhat sluggish as yet, but the course has been revamped and made very practical so as to prepare those interested for a quick entry into the field.

There is also a sales service which we feel will be quite productive of much good. This sales service will be interesting and sell the services for which the men have been trained. There is no reason why the refractionists connected with our program, as it now stands, should not have an abundance of work to do at all times.

A leaflet containing full particulars is available for the asking. This is strictly a professional proposition backed by high-class business and professional men.

Address letters care Dr. F. P. Barr, 405 Ward Building, Rochester, New York, for full particulars.

AMERICAN OPTOMETRIC ASSOCIATION

All officers of the American Optometric Association were re-elected at the recent convention held in San Francisco. The men so honored were as follows: Dr. Walter Kimball, President; Dr. L. Mayer, Vice-president; Dr. E. Kiekenapp, Secretary; and Dr. C. Jenkins, Treasurer, with the following on the Board: Doctors Martin, Stengle, Sterzer, Howe, and Hoare. The usual discussions regarding changes in the constitution took place and the delegates will in 1927 vote upon these changes.

MINNESOTA BOARD

The following candidates were successful in the examinations of the Minnesota State Board of Examiners in Optometry, held June 10th and 11th, 1926: Drs. W. J. Stevens, 3020 Chicago Ave., Minneapolis; Gustaf A. Berling, 76 S. 8th St., Minneapolis; Chester W. Peterson, 358 St. Peter St., St. Paul, Minn.; K. W. Swanson, 114 E. 6th St., St. Paul, Minn; Albert L. Hansen, 4312 Columbus Ave., Minneapolis; Edward E. Lundquist, 1701 22nd Ave. N. E., Minneapolis.

NORTH DAKOTA OPTOMETRIC ASSOCIATION

Plans are being completed for the next annual convention to be held in Grand Forks August 2 and 3 at the City Hall auditorium. Dr. H. S. McClung, certified clinician of the American Optometric Association, of Regina, Saskatchewan, will be featured in the educational work.

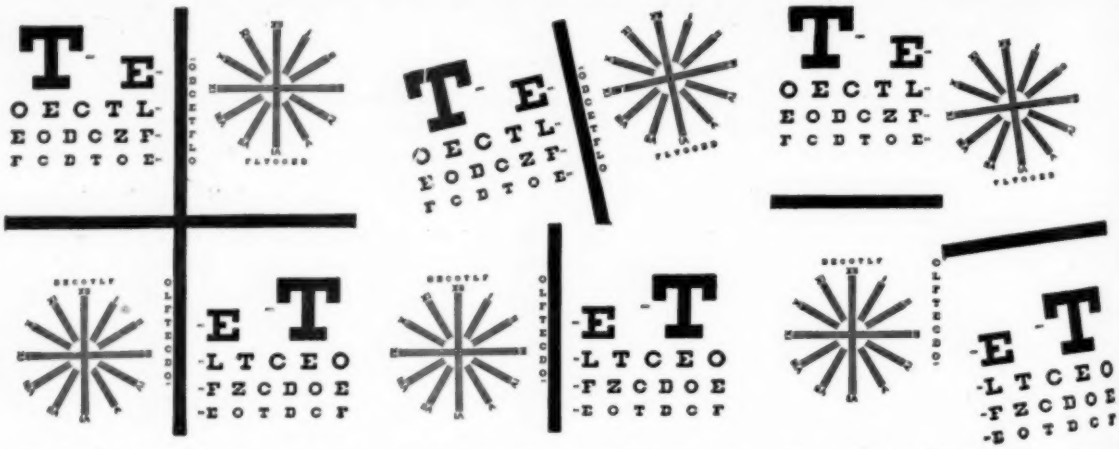
The afternoon of the first day will be given over to clinical demonstration work by Dr. McClung. The second day he will deliver two lectures, "Binocular Balance" in the forenoon and "Subjective Skiascopy" in the afternoon.

Foremost among the important matters to be discussed at the business session will be the proposed new optometry law. The legislative committee, of which Dr. L. J. Anderson of Grand Forks is chairman, will present the new optometry law for the consideration of the membership.

The new affiliation charter granted to the state by the American Optometric Association has just been received. It is a large beautifully engraved document, containing the signatures of the officers and trustees of the American Optometric Association together with the corporation seal, and is a fitting emblem of the ties that bind state and national associations in the common cause of organized optometry. The new charter will be displayed at the convention hall.

Several entertainment features are also on the program. As a convention host no other North Dakota city outranks Grand Forks in hospitality. Every association member is urged to be present.

A. S. Anderson, Opt. D.,
Secretary.



You get a case that has been the rounds of "all the good specialists in the city"; no glasses have been found that give relief. You seat the patient before a chart like the above and bring the Hemisensory Binoculometer into position: promptly the patient reports conditions as depicted above. You at once recognize it to be esophoria, associated with a great cyclophoria. It is unmistakable, all doubt is thrown to the four winds.

You now turn the instrument to make vertical test; the cyclophoria is again shown, associated with right hyperphoria. Ah! plus lenses **removed** the esophoria but the cyclophoria and the hyperphoria remained unchanged. What should you do? Can you give this patient comfort?

CERTAINLY YOU CAN; the H. B. test has shown you conclusively that the plus lenses remove the esophoria,—**that accommodation and convergence are working in harmony**; all that remains is to correct the hyperphoria with prisms incorporated in the prescription for glasses AND THE CYCLOPHORIA WILL DISAPPEAR,—and your patient will be happy, and so will you.

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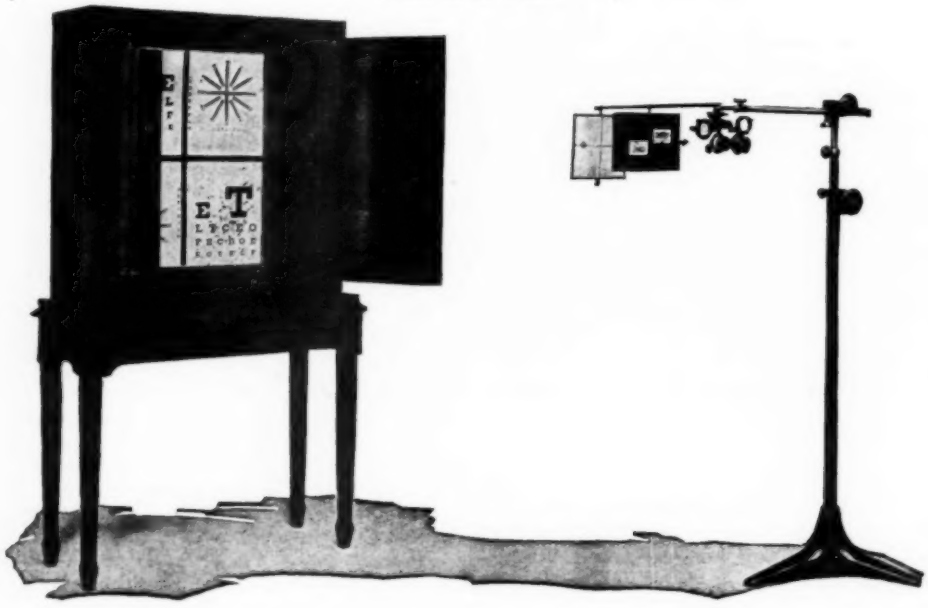

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